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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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09/995,740

11/29/2001

Young Wha Kim

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08/01/2005

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EXAMINER

LUGO, DAVID B

ART UNIT

PAPER NUMBER

2637

DATE MAILED: 08/01/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

09/995,740

Applicant(s)

KIM ET AL.

Examiner

David B. Lugo

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 29 November 2001.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 29 November 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date 11/29/01.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_.

## DETAILED ACTION

### *Drawings*

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(4) because reference character “521” has been used to designate both time point t(1) of processor 1 in Fig. 5 and time point t(1) of processor 3 for user 2 in Fig. 7.

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 751 (p. 15, line 10).

It appears that reference sign 751 should be used to designate the element presently designated by reference sign 521 in Figure 7.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application.

3. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference character(s) not mentioned in the description: 302 (Fig. 3), and 410 (Fig. 4). Corrected drawing sheets in compliance with 37 CFR 1.121(d), or amendment to the specification to add the reference character(s) in the description in compliance with 37 CFR 1.121(b) are required in reply to the Office action to avoid abandonment of the application.

4. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. Each drawing sheet submitted after the filing date of an application must be labeled in the top margin as either “Replacement Sheet” or “New Sheet” pursuant to 37 CFR 1.121(d). If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

*Specification*

5. The specification includes language that is difficult to understand, and a substitute specification in proper idiomatic English and in compliance with 37 CFR 1.52(a) and (b) is required. The substitute specification filed must be accompanied by a statement that it contains no new matter.

A substitute specification must not contain new matter. The substitute specification must be submitted with markings showing all the changes relative to the immediate prior version of the specification of record. The text of any added subject matter must be shown by underlining the added text. The text of any deleted matter must be shown by strike-through except that double brackets placed before and after the deleted characters may be used to show deletion of five or fewer consecutive characters. The text of any deleted subject matter must be shown by being placed within double brackets if strike-through cannot be easily perceived. An accompanying clean version (without markings) and a statement that the substitute specification contains no new matter must also be supplied. Numbering the paragraphs of the specification of record is not considered a change that must be shown.

6. The disclosure is further objected to because of the following informalities:

- a. Page 9, line 27, it appears that the second occurrence of "time point t(3)" should be --time point t(5)-- in order to correspond with Figure 3.
- b. Page 12, line 16, "t(K-1) 520" is used when referring to Fig. 5, but block t(K-1) of Fig. 5 does not include such a corresponding reference number, as reference number 520 is already used to depict time point t(0) of processor 1.
- c. Page 13, line 7 contains a typographical error in the beginning of the line.

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d. Page 14, line 26, the second occurrence of reference number "742" appears to be incorrect.

Appropriate correction is required.

***Claim Objections***

7. Claims 1-8 are objected to because of the following informalities:

a. Claim 1, line 7, it appears "received signal state" should be --a received signal state--.

b. Claim 2, line 3, "from" should be deleted after the "repeating".

c. Claim 2, line 3, "detecting the step (c)" should be --detecting step (c)--.

d. Claim 3, line 3, it appears --is received-- should be inserted after "the user".

e. Claim 5 recites the limitation "the detected signal" in line 8. There is insufficient antecedent basis for this limitation in the claim.

f. Claim 8, line 11, it appears "received signal state" should be --a received signal state--.

Appropriate correction is required.

***Claim Rejections - 35 USC § 112***

8. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

9. Claims 1-8 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

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10. The claims are indefinite, failing to conform with current U.S. practice, as they appear to be a literal translation into English from a foreign document and are replete with grammatical and idiomatic errors.

Examples of such errors include:

- a. In claim 1, line 3, and claim 8, line 7, it is unclear what is meant by “an over sample position”.
- b. In claims 1, 4, 5, and 8, it is unclear what property of the signal is being referred to by the “received signal state”.
- c. In claim 4, the language of sub-step (b1) is unclear
- d. In claim 5, the language of sub-step (c1) is unclear.

***Claim Rejections - 35 USC § 102***

11. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

12. Claims 1-8 are rejected under 35 U.S.C. 102(e) as being anticipated by Karna U.S. Patent Application Publication 2002/0196841.

Regarding claims 1 and 8, Karna discloses a method for parallel type interference cancellation in a CDMA receiver in Figure 2, where the method is preferably executed by a microprocessor having stored instructions (page 7, para. 54), comprising generating sample estimates for spread user signals (step 206) which is a temporary detecting and recovering of a

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user symbol and where the sample set includes at least one new completed symbol (page 4, para. 35), generating a residual signal by using the recovered signal of the user and a received signal (step 208; para. 38), and detecting symbol information by obtaining an interference cancelled signal by adding the residual signal to the recovered signal of the user (step 210; para. 39), where Figure 7 further shows that a residual signal generated from the output of subtractor 708 is added to first symbol estimates generated by first detection stage 600 via adders 712 in order to obtain specified user signal estimates 320 (see page 6, para. 50).

Regarding claim 2, Karna shows in Figure 2 that the steps of the method are repeated using the generated user signal estimates of step 210 in step 206 (page 4, para. 40).

Regarding claim 3, Karna discloses that at least one new symbol must be completely received (para. 35), and the recovered signal is obtained by adjusting the amplitude and phase of the temporarily detected signal using a channel estimate in step 206 (see page 4, para. 36).

Regarding claim 4, Karna discloses that sample estimates for user signals are summed up and subtracted from a sample of the sample set read to the interference canceling-stage (para. 37), where the residual signal sample is obtained as the difference between the sample of the sample set and the sample estimates of all users (para. 38), and where partial symbols may be utilized and subjected to interference cancellation (page 5, para. 47).

Regarding claim 5, Karna discloses that sample estimates for user signals are summed up and subtracted from a sample of the sample set read to the interference canceling-stage (para. 37), where partial symbols may be utilized and subjected to interference cancellation (page 5, para. 47), and where the symbol is detected using a matched filtering (i.e. correlation) (para. 39).

Regarding claim 6, Karna shows in Figure 4 that the symbol lengths may be equal.

Regarding claim 7, Karna discloses that user symbols may be of different lengths (page 4, para. 35)

***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David B. Lugo whose telephone number is 571-272-3043. The examiner can normally be reached on M-F; 9:30-6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jay Patel can be reached on 571-272-2988. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

David Lugo  
7/28/05

  
**KHAI TRAN**  
**PRIMARY EXAMINER**